

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Currently Amended) A bearing device comprising:

~~a plurality of~~ raceway members which perform relative motion ~~, wherein~~
and have opposed faces;

a lubricant supply unit body which supplies lubricant ~~as necessary~~ is
~~additionally~~ disposed between the opposed faces of said raceway members ~~[[,]]~~ ;
and

said lubricant supply unit body comprises:

a pump which discharges the lubricant ~~[[,]]~~ ;

a nozzle attached to the pump and having a nozzle open end
for discharging the lubricant; and

the nozzle open end being disposed between said opposed
faces of said raceway members ~~and a driving portion which drives~~
~~said pump.~~

2. (Currently Amended) A bearing device according to claim 1, wherein said lubricant supply unit body includes a [[said]] driving portion for said pump which is an electric generator having a power generating capacity according to [[the]] a rotational speed of [[a]] the bearing device, and an amount of lubricant discharged by said pump is controlled in accordance with the power generating capacity of said electric generator.

3. (Currently Amended) A bearing device according to claim 1, wherein said lubricant supply unit body includes a [[said]] driving portion for said pump which is a battery.

4. (Original) A bearing device according to claim 3, wherein said battery is a fuel cell.

5. (Original) A bearing device according to claim 4, wherein said lubricant supply unit body comprises storing means from which hydrogen for said fuel cell can be taken out.

6. (Previously Presented) A bearing device according to claim 1, wherein said lubricant supply unit body comprises a lubricant storing tank.

7. (Currently Amended) A bearing device according to claim 1, wherein said ~~plurality of~~ raceway members and said lubricant supply unit body have a ring-like shape and are disposed coaxially.

8. (Currently Amended) A bearing device according to claim 7, wherein said bearing device is a rolling bearing in which said ~~plurality of~~ raceway members are an inner ring and an outer ring, and which comprises a plurality of rolling elements between said inner and outer rings.

9. (Currently Amended) A bearing device according to claim 1, wherein said lubricant supply unit body comprises a sensor which detects a lubrication condition between said opposed faces of said ~~plurality of~~ raceway members, and said pump is functionally controlled based on a detection output from said sensor.

10. (Currently Amended) A bearing device according to claim 7, wherein said raceway members include a stationary raceway member and a rotating raceway member, and said lubricant supply unit body is detachably attached to a vicinity of a shoulder portion of a circumferential face of [[a]] said stationary raceway member which is opposed to [[a]] said rotating raceway member.

11. (Currently Amended) A bearing device ~~according to claim 7, wherein~~
comprising:

[[said]] raceway ~~member is a bearing~~ members comprising [[:]] outer and inner rings each having a raceway surface;

rolling elements ~~and a seal ring which are~~ disposed between said outer and inner rings, and

a lubricant supply unit body formed as a unit having at least [[said]] a pump, ~~said driving portion for said pump, and said lubricant storing tank are formed in a unit as said lubricant supply unit body,~~ and said lubricant supply unit body [[is]] being detachably attached to a vicinity of a shoulder portion of an inner circumferential face of said outer ring or a vicinity of a shoulder portion of an outer circumferential face of said inner ring ~~, or to an inner side face of said seal ring.~~

12. (Previously Presented) A bearing device according to claim 1, wherein said pump is a diaphragm pump comprising a piezoelectric element and a diaphragm which is displaced in a reciprocating manner by said piezoelectric element.

13. (Currently Amended) A bearing device according to claim [[12]] 1, wherein said pump comprises a ~~miniature motor~~, ~~in place of said piezoelectric element~~.

14. (Currently Amended) A bearing device according to claim [[11]] 1, ~~wherein~~ further comprising:

a lubricant storing tank;

a driving portion driving said pump;

a seal ring disposed to seal an opening between said raceway members and having an inner face facing between said raceway members and an outer face on a side opposite said inner face;

said lubricant storing tank [[is]] being detachably attached to [[an]] said outer face of said seal ring [[,]] ; and

said driving portion and said pump ~~are additionally~~ being disposed on [[an]] said inner face of said seal ring.

15. (Currently Amended) A bearing device according to claim 9, further comprising a controlling means controlling an amount of lubricant discharged by said pump, wherein said sensor is a temperature sensor, said temperature sensor is attached to a vicinity of raceway portions of at least one of said raceway

members, and ~~[[an]]~~ the amount of lubricant discharged by said pump is controlled by said controlling means based on a detection output of said temperature sensor.

16. (Previously Presented) A bearing device according to claim 9, wherein relationships between an output value of said sensor and a lubrication condition are previously obtained, the lubrication condition is predicted from a measured value of said sensor, and said pump is controlled in accordance with a result of the prediction.

17. (New) The bearing device according to claim 11, wherein said raceway members and said lubricant supply unit body have a ring-like shape and are disposed coaxially.

18. (New) The bearing device according to claim 11, wherein said lubricant supply unit body includes a driving portion for said pump.

19. (New) A bearing device, comprising:

a bearing comprising:

an outer ring having an inner circumferential surface
including a raceway surface;

an inner ring having an outer circumferential surface
including a raceway surface; and

rolling elements and a seal ring which are disposed between
said outer and inner rings;

a lubricant supply unit body formed as a unit including:

a lubricant storing tank; and

a pump pumping lubricant from the lubricant storing tank;

and

said lubricant supply unit body being detachably attached to a vicinity of a
shoulder portion of the inner circumferential face of said outer ring or a vicinity
of a shoulder portion of the outer circumferential face of said inner ring, or to an
inner side face of said seal ring.

20. (New) A bearing device comprising:

raceway members which perform relative motion and have opposed faces;

a lubricant supply unit body which supplies lubricant to a space between
said opposed faces and is disposed between the opposed faces of said raceway
members; and

said lubricant supply unit body comprises:

a pump which discharges the lubricant;

a nozzle attached to the pump and having a nozzle open end

for discharging the lubricant; and

a driving portion for driving the pump.

21. (New) The bearing device according to claim 20, wherein the open end of said nozzle for discharging lubricant is disposed between said opposed faces of said raceway members.

22. (New) The bearing device according to claim 21, wherein said lubricant supply unit body comprises a lubricant storing tank.

23. (New) The bearing device according to claim 21, wherein said pump is a diaphragm pump comprising a piezoelectric element and a diaphragm which is displaced in a reciprocating manner by said piezoelectric element.

24. (New) A bearing device comprising:

raceway members which perform relative motion and have opposed faces;

a lubricant supply unit body which supplies lubricant to a space between said opposed faces and is disposed between the opposed faces of said raceway members; and

said lubricant supply unit body comprises:

a pump which discharges the lubricant; and

a control circuit for controlling an amount of lubricant discharged by said pump.

25. (New) The bearing device according to claim 24, wherein said pump comprises a nozzle for discharging lubricant.

26. (New) The bearing device according to claim 24, wherein said lubricant supply unit body comprises a lubricant storing tank.

27. (New) The bearing device according to claim 24, wherein said pump is a diaphragm pump comprising a piezoelectric element and a diaphragm which is displaced in a reciprocating manner by said piezoelectric element.

28. (New) A bearing device, comprising:

a bearing comprising:

an outer ring having an inner circumferential surface
including a raceway surface;

an inner ring having an outer circumferential surface
including a raceway surface; and

rolling elements disposed between said outer and inner
rings;

a lubricant supply unit body formed as a unit including a pump which has
a nozzle for discharging lubricant; and

said lubricant supply unit body being detachably attached to a vicinity of a
shoulder portion of the inner circumferential face of said outer ring or a vicinity
of a shoulder portion of the outer circumferential face of said inner ring.

29. (New) The bearing device according to claim 28, wherein said pump
is a diaphragm pump comprising a piezoelectric element and a diaphragm which
is displaced in a reciprocating manner by said piezoelectric element.

30. (New) The bearing device according to 28, a lubricant storing tank is
formed in a unit as said lubricant supply unit body.

31. (New) A bearing device, comprising:

a bearing comprising:

an outer ring having an inner circumferential surface including a raceway surface;

an inner ring having an outer circumferential surface including a raceway surface; and

rolling elements disposed between said outer and inner rings;

a lubricant supply unit body formed as a unit including:

a pump discharging lubricant; and

a control circuit for controlling an amount of lubricant discharged by said pump; and

said lubricant supply unit body being detachably attached to a vicinity of a shoulder portion of the inner circumferential face of said outer ring or a vicinity of a shoulder portion of the outer circumferential face of said inner ring.

32. (New) The bearing device according to claim 31, wherein said pump is a diaphragm pump comprising a piezoelectric element and a diaphragm which is displaced in a reciprocating manner by said piezoelectric element.

33. (New) The bearing device according to 31, a lubricant storing tank is formed in a unit as said lubricant supply unit body.

34. (New) A bearing device, comprising:

a bearing comprising:

an outer ring having an inner circumferential surface including a raceway surface;

an inner ring having an outer circumferential surface including a raceway surface; and

rolling elements and a seal ring which are disposed between said outer and inner rings;

a lubricant supply unit body formed as a unit including:

a lubricant storing tank; and

a pump pumping lubricant from the lubricant storing tank;

and

a driving portion for driving said pump; and

said lubricant supply unit body being detachably attached to a vicinity of a shoulder portion of the inner circumferential face of said outer ring or a vicinity

of a shoulder portion of the outer circumferential face of said inner ring, or to an inner side face of said seal ring.

35. (New) A bearing device, comprising:

raceway members which perform relative motion and have opposed faces;

a lubricant supply unit body which supplies lubricant to a space disposed between the opposed faces of said raceway members; and

a lubricant supply unit body formed as a unit including:

a pump discharging said lubricant from the lubricant storing tank; and

a driving portion for driving said pump; and
said pump being detachably attached to the bearing device.

36. (New) The bearing device according to claim 35, wherein said pump comprises a nozzle for discharging lubricant.

37. (New) The bearing device according to claim 11, wherein said pump comprises a nozzle for discharging lubricant.

38. (New) The bearing device according to 37, wherein an open end of said nozzle for discharging lubricant is disposed between opposed faces of said raceway members.

39. (New) The bearing device according to 1, wherein said pump comprises a control circuit, and said control circuit controls an amount of the lubricant discharged by the pump.

40. (New) The bearing device according to 39, wherein said pump comprises a driving portion, and a control circuit connects between said pump and said driving portion for said pump.

41. (New) A bearing device according to 11, wherein a lubricant storing tank is formed in a unit with said lubricant supply unit body.

42. (New) The bearing device according to 11, further comprising a seal ring disposed between said inner and outer rings.